Extended Toxicity to Lacewing (Non-guideline)

MRID: 45455005
Chemical Name: Pyraclostrobin
PC Code: 099100
EPA DP Barcode: D418951
Test Material: BAS 500 00F
Purity: Pyraclostrobin (23%)

Citation: Ufer, A. 1999. Effect of BAS 500 00F on the green lacewing *Chrysoperla carnea* (Neuroptera: Chrysopidae) in an extended laboratory trial. Lab project number: 49952: 1999/11233. Unpublished study prepared by BASF Aktiengesellschaft.

Study Summary: Lacewings (*Chrysoperla carena*) were exposed to pyraclostrobin multiple times throughout their life cycle. Eggs were exposed to direct spray while larvae, and adults were exposed to residues on plants. The intention of the experiment was to quantify the effects of cumulative exposures to pyraclostrobin over the course a lacewing's life; however, this was not achieved because of problems with negative control mortality in the adult-phase portion of the test. The adult-phase was repeated a second time, but a large number of lacewings escaped, which halted the experiment. The adult-phase was repeated a third time and carried through conclusion. Given the problems in the adult-phase and that the second and third attempts to repeat the adult-phase portion were conducted with previously untreated adults, the results of the experiment cannot be used to represent the cumulative effects of multiple pyraclostrobin exposures on lacewings through the adult stage. Cumulative effects can only be determined through the larval stage.

Lacewing eggs originated at Forschungsanstalt für landwirtschaftlichen pflanzenbau in Zurich, Switzerland. Pyraclostrobin (0.14 lb ai/A), tap water (negative control) and dimethoate (positive control at 0.35 lb ai/A) were directly sprayed on lacewing eggs (24 hours old). After exposure, they were transferred to cell culture cluster dishes and covered with petri dishes so that emerging larvae could not escape. Each treatment group had 144 eggs, except for the positive control, which only had 92 eggs. The number of eggs and hatched larvae were quantified daily. There were no statistically significant differences for hatching rate among the treatment groups (negative control = 73.6% ± 11.5; pyraclostrobin = 73.6% ± 7.9; positive control = 79.9% ± 12.6).

Larvae (3 days old) were exposed to residues via treated bean plants. One plant (23 days old with 6 leaves) was placed inside of a plastic cage. There were three replicates for the pyraclostrobin and negative control groups; the positive control only had one replicate. Each replicate contained 20 larvae. Beginning 10 days after the larvae were placed in the test

chamber, daily observations were made to look for hatched adults. There were no statistically significant differences between the number of larvae that emerged as adults for the negative control (mortality = 23.3% ± 5.8) and pyraclostrobin group (mortality = 15% ± 13.2). The positive control exhibited 100% mortality.

Previously untreated (*i.e.*, adult lacewings were not derived from larvae or eggs that had been exposed in the earlier phases of this experiment) adults (2 to 3 days old) were exposed to residues via treated bean plants. A test unit contained one potted bean plant that had been sprayed with the test item [or water (negative control)] when the plant had six leaves. Only pyraclostrobin and negative control groups were used in this experiment. There were four replicates per group, each containing 15 lacewings (10 females and 5 males). The exposure period was 7 days, and observations were made on days 2, 3, 5, and 6. The sex and number of dead lacewings were recorded. A statistically significant difference was detected in mortality between the negative control (2.2% ± 3.8) and the pyraclostrobin group (28.9% ± 21.4).

After the exposure period, surviving lacewings were transferred to glass jars that were at least 1 L in size for the reproduction portion of the test. During the next four weeks, the number of eggs produced over a 24 hour period was assessed at eight different times. After each count, the lacewings were transferred into a new untreated jar. The eggs were collected and stored until hatching was complete, thereby determining the number of fertile eggs produced per female. There was a statistically significant decrease in the number of eggs that were produced per female in the negative control (24.6 eggs/female) versus the pyraclostrobin group (6.9 eggs/female); however, there were no differences in hatching rate success (negative control = 94.8%; pyraclostrobin = 81%).

Classification: Supplemental because the non-guideline study does not fulfill a data requirement.

Reviewer Comments:

- This study was conducted according to Good Laboratory Practices (OECD) and EG Directive 91/414/EEC.
- Portions of the study are scientifically valid.
- This study is useful for qualitative purposes and demonstrates no effects on eggs directly exposed to pyraclostrobin or larvae exposed to residues at 0.14 lb ai/A. Exposure of previously untreated adults to pyraclostrobin at 0.14 lb ai/A indicates an increase in mortality, a decrease in egg production, but no change in hatching rate success.

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Date: 5/16/14

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